LEADING ARTICLE

Should the Frequency of Surveillance for Small Abdominal Aortic Aneurysms be Reduced? CME

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Different national screening programmes use a variety of surveillance intervals for patients identified with small abdominal aortic aneurysm. An individual patient meta-analysis of >15000 persons with small aneurysm has provided a strong scientific basis for safe surveillance frequency. In many screening programmes the number of surveillance visits for men could be reduced by up to half. The higher rate of aneurysm rupture in women leads to different recommendation for women.

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Many patients would prefer not to be patients, particularly when their aneurysm is detected as a result of screening. Too much surveillance is the equivalent of over treatment. However, until recently there has been little evidence as to how often a patient with a small abdominal aortic aneurysm should have their aneurysm size monitored and, as a result, the frequency of surveillance varies in different screening programmes.[1] Recently, the RESCAN Collaborators reported their findings based on individual patient data from more than 15,000 persons with small abdominal aortic aneurysm, from 18 surveillance studies across the globe.[2]

Typically, patients with aneurysm diameters in the range 3.0—5.4 cm undergo surveillance, whereas those reaching 5.5 cm or above are considered for surgery. With individual patient data, it is possible to restrict the information about growth and rupture to the surveillance range of 3.0—5.4 cm diameter aneurysms, estimate the risk of rupture while under surveillance, and predict how long it will take for an aneurysm of known diameter to exceed the 5.5 cm threshold. For each 0.5 cm increase in aortic diameter, the RESCAN project found that the growth rate increased on average by about 0.6 mm per year and the rupture rate approximately doubled.

The large majority of screen-detected aneurysms have diameters of <4.5 cm, with a mean growth rates of 1.28, 1.86 and 2.44 mm per year for 3.0, 3.5 and 4.0 cm aneurysms, respectively, but with significant heterogeneity between the different studies. The maximum rate of rupture in men, even up to 4.5 cm diameter aneurysm, was only 3.2 per 1000 patient-years. For these patients, with initial aneurysm diameter <4.5 cm, surveillance intervals of 3 years until 3.9 cm and then 2 years until 4.5 cm would be safe, even allowing for the heterogeneity between populations, with a very low risk of aneurysm rupture (<1% per annum). These intervals are substantially longer than those currently being used in most screening and surveillance programmes.[1]

For men with aneurysms of diameter 4.5—5.4 cm, surveillance intervals of 1 year could be recommended for most screening programmes, but acknowledging that men in different studies may have different growth and rupture rates, the frequency of surveillance could be increased to 6-monthly, to ensure that the rupture risk is maintained at <1% between surveillance scans for all.

The RESCAN studies enrolled patients between 1986 and 2005. Importantly, there was no evidence that aneurysm growth rates had changed with time, although there was some evidence that rupture rates are decreasing with time.[3] Therefore, recent findings from the RESCAN Collaboration remain valid for the future, particularly if rupture rates are decreasing. Application of these findings would extend the surveillance intervals for most screening programmes and reduce by about half the number of times a man would have to attend for surveillance. It is hoped that this reduction in surveillance will lower both patient anxiety and costs.

The growth rates of small aneurysms in women did not appear to be different from those in men but the aneurysm rupture rates were approximately four times higher in women. For example, the rupture rate of a 4.5 cm aneurysm in women was about equal to that of a 5.5 cm aneurysm in men. For several years there has been a groundswell of opinion that women need to be offered intervention at smaller diameters than men: the Society for Vascular Surgery guidelines suggest that intervention is considered at a diameter of 5.0 cm in women.[4] The findings from RESCAN are not a mandate to further reduce the intervention threshold to 4.5 cm in women. Women with

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small aneurysms are usually older than men, have higher operative mortality than men from both open and endovascular repair, and are more likely to have aortic anatomy that is less suitable for endovascular repair (short angulated necks and narrow access vessels[5]). However, surveillance intervals for women are likely to be different from those recommended for men. Women with aneurysms of 3.0—3.9 cm still can be offered 2—3 year surveillance intervals, but thereafter the surveillance intervals should be shorter than those for men (for example, 6 months for 4.0—4.4 cm aneurysms and 3 months for 4.5—4.9 cm aneurysms).

The RESCAN project has demonstrated the willingness and advantages of vascular surgeons collaborating to provide evidence for patient benefit. We hope that its findings will be translated quickly into clinical practice.

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CONFLICT OF INTEREST

None.

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